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Tent, Membrane Structure, and Temporary Stage Canopy Requirements

(Per 2021 International Fire Code)

This guide should help ensure your tent, membrane structure, or temporary stage canopy is in compliance with the current safety regulations. It should serve as an initial planning tool, and does not remove the responsibility of the owner to comply with all laws applicable to the tents, membrane structures, and temporary stage canopies.

DEFINITIONS:

AIR-INFLATED STRUCTURE: A structure that uses air-pressurized membrane beams, arches or other elements to enclose space. Occupants of such a structure do not occupy the pressurized areas used to support the structure.

AIR-SUPPORTED STRUCTURE: A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area.

MEMBRANE STRUCTURE: An air-inflated, air-supported, cable or frame-covered structure as defined by the International Building Code and not otherwise defined as a tent.

TEMPORARY STAGE CANOPY: A temporary ground-supported membrane-covered frame structure used to cover stage areas and support equipment in the production of outdoor entertainment events.

TENT: A structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable material supported by any manner except by air or the contents that it protects.

Approval required. Tents and Membrane Structures, including Temporary Stage Canopies, having an area in excess of 400 square feet shall not be erected, operated, or maintained for any purpose without first obtaining a **permit** from the FIRE DEPARTMENT (ph. 903-535-0007) and a special use permit from PLANNING AND ZONING (ph. 903-531-1175).

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Tents open on all sides that comply with all of the following:
 - (1) Individual tents having a maximum size of 700 square feet.
 - (2) The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet not exceeding 700 square feet total.
 - (3) A minimum clearance of 12 feet to all structures and other tents.

Construction documents. A detailed site and floor plan for tents or membrane structures, with an occupant load of 50 or more, shall be provided with each application for approval. The tent or membrane structure floor plan shall indicate details of the means of egress facilities, seating capacity, arrangement of the seating and location and type of heating and electrical equipment.

Inspection report. When required by the code official, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

ACCESS, LOCATION AND PARKING

Access. Fire apparatus access roads shall be provided.

Location. Tents or membrane structures shall not be located within 20 feet of lot lines, buildings, other tents or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or tent.

Exceptions:

1. Separation distance between membrane structures and tents not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet.
 2. Membrane structures or tents need not be separated from buildings when all of the following conditions are met:
 - (1) The aggregate floor area of the membrane structure or tent shall not exceed 10,000 square feet.
 - (2) Required means of egress is provided for both the building and the membrane structure or tent, including travel distance.
 - (3) Fire apparatus access roads are provided.
- Membrane structures or tents having an **area of 15,000 sq. ft.** or more shall be located not less than 50 feet from any other tent or structure, as measured from the sidewall of the tent or membrane structure, unless joined together by a corridor.
 - Tents are allowed to be joined by means of **connecting corridors**. Exit doors shall be provided at each end and on each side of corridors, approximately opposite each other. Openings must be at least 12 ft. wide.
 - An unobstructed **fire break** not less than 12 feet wide and free from guy ropes or other obstructions shall be maintained on all sides of all tents and membrane structures, unless otherwise approved by the fire code official.

STRUCTURAL STABILITY

Anchorage required. Tents or membrane structures shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. Documentation of structural stability shall be furnished to the fire code official on request.

FIRE SAFETY REQUIREMENTS

Flame-resistant treatment. Before a permit is granted, the owner or agent shall file with the code official a certificate executed by an approved testing laboratory, certifying that the tents or membrane structures are composed of flame-resistant material or shall be treated with a flame retardant in an approved manner and meet the requirements for flame resistance as determined in accordance with NFPA 701, and that such flame resistance is effective for the period specified by the permit.

Label. Tents or membrane structures shall have a permanently affixed label bearing the identification of size and fabric or material type.

Certification. An affidavit shall be submitted to the Code Official and a copy retained on the premises on which the tent or membrane structure is located attesting to the following information relative to the flame resistance of the fabric.

1. Names and address of the owners of the tent or air-supported structure.
2. Date the fabric was last treated with flame-resistant solution.
3. Trade name or kind of chemical used in treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

Combustible materials. Hay, straw, shavings or similar combustible materials shall not be located within any tent containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance must be kept damp. Combustible materials shall not be permitted under stands or seats at any time. The areas within and adjacent to the tent shall be maintained clear of all combustible materials or vegetation that could create a fire hazard within 30 feet from the structure.

Smoking shall not be permitted in tents and approved "No Smoking" signs shall be conspicuously posted.

Open or exposed flame devices or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be permitted inside or located within 20 feet of the tent, while open to the public, unless approved by the code official.

Fireworks shall not be used within 100 feet of tents.

Portable fire extinguishers shall be provided as required.

Occupant load factors and seating in an assembly structure shall be determined in accordance with Chapter 10: International Building Code (2021 edition).

Exits shall be spaced at equal intervals around the perimeter of the tent, and located so all points within are not more than 100 feet from an exit.

Number. Tents and membrane structures shall have at least one exit and not less than the number of exits required by Table 3103.12.2. The widths of means of egress required by Table 3103.12.2 shall be divided approximately equally among the separate means of egress. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by a means of egress multiplied by 0.2 inches (5 mm) per person.

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches) Tent	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches) Membrane Structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000	7	120	96

Exit openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches above the floor level at the exit arranged so that when open, no part of the curtain obstructs the exit.
2. Curtains shall be of a color, or colors, that contrast with the color of the tent.

Doors. Exit doors shall swing in the direction of exit travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds

Aisle. The width of aisles without fixed seating shall be in accordance with the following:

1. In areas serving employees only, the minimum aisle width shall be 24 inches but not less than the width required by the number of employees served.
2. In public areas, unobstructed aisles having a minimum width of not less than 44 inches shall be provided from seating areas, and aisles shall be progressively increased in width to provide, at all points, not less than 1 foot of aisle width for each 50 persons served by such aisle at that point.

Arrangement and maintenance. The arrangement of aisles shall be subject to approval by the code official and shall be maintained clear at all times during occupancy.

Exit signs shall be installed at exit doorways and where otherwise necessary to indicate clearly the direction of egress when the exit serves an occupant load of 50 or more.

Exit sign illumination shall be of an approved self-luminous type or shall be internally or externally illuminated by fixtures supplied in the following manner:

1. Two separate circuits, one of which shall be separate from all other circuits, for occupant loads of 300 or less; or
2. Two separate sources of power, one of which shall be an approved emergency system, shall be provided when the occupant load exceeds 300. Emergency systems shall be supplied from storage batteries or the on-site generator set, and the system shall be installed in accordance with the ICC *Electrical Code*.

Means of egress shall be illuminated. Fixtures required for means of egress illumination shall be supplied from a separate circuit or source of power.

Maintenance of means of egress. The required width of exits, aisles and passageways shall be maintained at all times to a public way. Guy wires, guy ropes and other support members shall not cross a means of egress at a height of less than 8 feet.

HEATING AND COOKING EQUIPMENT

Installation. Heating or cooking equipment shall be installed as specified in the *International Mechanical Code* and the *International Fuel Gas Code*, and shall be approved by the fire code official.

Venting. Gas, liquid and solid fuel-burning equipment designed to be vented shall be vented to the outside air. Such vents shall be equipped with approved spark arresters when required. Vents or flues shall be at least 12 inches from the tent or canopy.

Location. Cooking and heating equipment shall not be located within 10 feet of exits or combustible materials.

Operations such as food warming and cooking demonstrations that use solid flammables (sterno), butane or other similar devices which do not pose an ignition hazard, shall be approved.

Cooking tents shall be separated from other tents or membrane structures by a minimum of 20 feet.

Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet from a tent or membrane structure.

Electrical heating and cooking equipment shall comply with NFPA 70.

LP-GAS

General. LP-gas equipment shall be approved and in accordance with the *International Fuel Gas Code* and Chapter 61 of the International Fire Code.

LP-gas containers shall be located outside and safety release valves shall be pointed away from tents or membrane structures.

Portable LP-gas **containers of 500 gallons** or less shall have a minimum separation between the container and structure not less than 10 feet.

Portable LP gas **containers of more than 500 gallons** capacity must be a minimum of 25 ft. from the structures.

Protection and security. Portable LP-gas containers, piping, valves and fittings located outside and used to fuel equipment inside a tent or membrane structure shall be adequately protected to prevent tampering or damage by vehicles or other hazards and shall be located in an approved location. Portable LP-gas containers shall be securely fastened in place to prevent unauthorized movement.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

Use. Flammable-liquid-fueled equipment **shall not** be used in tents or membrane structures.

Flammable and combustible liquid storage. Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet from tents or membrane structures. Storage shall be in accordance with Chapter 57 of the International Fire Code.

Refueling. Refueling shall be performed in an approved location not less than 20 feet from tents or membrane structures.

LIQUID- AND GAS-FUELED VEHICLES

Batteries. Batteries shall be disconnected in an appropriate manner.

Fuel Systems. Fueling vehicles or equipment shall not be fueled or defueled within the tent or membrane structure.

Fuel in the fuel tank shall not exceed one-quarter tank or 5 gallons whichever is less.

Inspection. Fuel systems shall be inspected for leaks.

Closure. Fuel tank openings shall be locked and sealed to prevent the escape of vapors.

Location. The location of vehicles or equipment shall not obstruct means of egress.

Places of assembly. When a compressed natural gas (CNG) or liquefied petroleum gas (LP) powered vehicle is parked inside a place of assembly, all the following conditions shall be met:

1. The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG or LP-gas container shall be closed and the engine shall be operated until it stops.
2. The hot lead of the battery shall be disconnected.

GENERATORS

Generators and other internal combustion power sources shall be separated from tents or membrane structures by a minimum of 20 feet and shall be isolated by fencing or other approved means.

STANDBY PERSONNEL

When, in the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall employ one or more qualified persons, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted.

Before each performance or the start of such activity, standby personnel shall keep diligent watch for fires during the time such place is open to the public or such activity is being conducted and take prompt measures for extinguishment of fires that occur and assist in the evacuation of the public from the structure.

Crowd managers. There shall be trained crowd managers or crowd manager supervisors at a ratio of one crowd manager/supervisor for every 250 occupants, as approved.

HOUSEKEEPING

Vegetation removal. Combustible vegetation shall be removed from the area occupied by a tent or membrane structure and from areas within 30 feet of such structures.

Waste material. The floor surface inside tents or membrane structures and the grounds outside and within a 30-foot (9144 mm) perimeter shall be kept clear of combustible waste. Such waste shall be stored in approved containers until removed from the premises.

TEMPORARY STAGE CANOPIES

Temporary Stage Canopies must comply with all preceding requirements for membrane structures, in addition to the following specific requirements:

Use period: Temporary stage canopies shall not be erected for a period of more than 45 days.

Required documents: The following documents shall be submitted to the fire code official and the building official for review before a permit is approved:

1. **Construction documents** shall be prepared in accordance with the International Building Code by a registered design professional. Construction documents shall include:

- 1.1. A summary sheet showing the building code used, design criteria, loads and support reactions.
- 1.2. Detailed construction and installation drawings.
- 1.3. Design calculations.
- 1.4. Operating limits of the structure explicitly outlined by the registered design professional including environmental conditions and physical forces.
- 1.5. Effects of additive elements such as video walls, supported scenery, audio equipment, vertical and horizontal coverings.
- 1.6. Means for adequate stability including specific requirements for guying and cross-bracing, ground anchors or ballast for different ground conditions.

2. **Designation of responsible party:** The owner of the temporary stage canopy shall designate in writing a person to have responsibility for the temporary stage canopy on the site. The designated person shall have sufficient knowledge of the construction documents, manufacturer's recommendations and operations plan to make judgments regarding the structure's safety and to coordinate with the fire code official.

3. **Operations plan:** The operations plan shall reflect manufacturer's operational guidelines, procedures for environmental monitoring and actions to be taken under specified conditions consistent with the construction documents.

Independent Inspector: The owner of a temporary stage canopy shall employ a qualified, independent approved agency or individual to inspect the installation of a temporary stage canopy.

Inspection report: The inspecting agency or individual shall furnish an inspection report to the fire code official. The inspection report shall indicate that the temporary stage canopy was inspected and was or was not installed in accordance with the approved construction documents. Discrepancies shall be brought to the immediate attention of the installer for correction. Where any discrepancy is **not** corrected, it shall be brought to the attention of the fire code official and the designated responsible party.